

Southeastern Adaptive Management Group

U.S. Fish & Wildlife Service

U.S. Geological Survey

Florida Fish & Wildlife Conservation Commission

cooperating



Steering Committee Meeting

Gainesville, Florida

April 24, 2002

Topics

PART I - the past

- Collaborations with other USGS Science Centers and Cooperative Research Units
- Agency contacts / interactions
- Project focus (AHM, Goodwin WMA)
- Publications

PART II - present & future

- Nature of the SEAMG mission
- A proposal



Collaborations

➤ Adaptive Stochastic Dynamic Programming Workshop

- * May 22-23, 2001 - Patuxent WRC

- *SEAMG, Patuxent WRC, Colorado Coop, Georgia Coop, CRU, Cornell Univ.

➤ Adaptive Harvest Management for Black Ducks

- *ongoing

- *Georgia Coop, SEAMG, Patuxent WRC

➤ Adaptive Resource Management Conference Series

- *every 6 months

- *Oct 25-26, 2001 & May 16-17, 2002

- *Patuxent, SEAMG, GA & CO Coop, CRU, Cornell & Clemson Univ.

➤ Adaptive Harvest Management - federal hunting regulations for ducks

- *ongoing

- *SEAMG, Patuxent

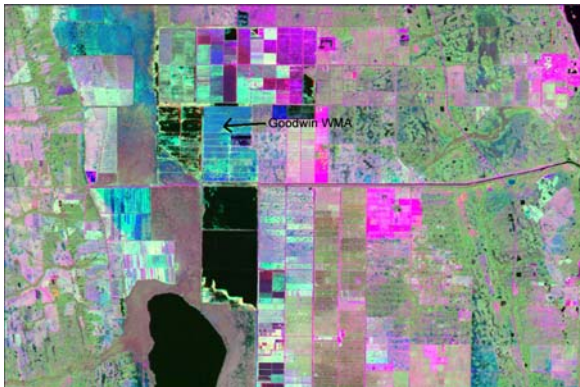


Agency contacts

➤ Big Cypress National Preserve



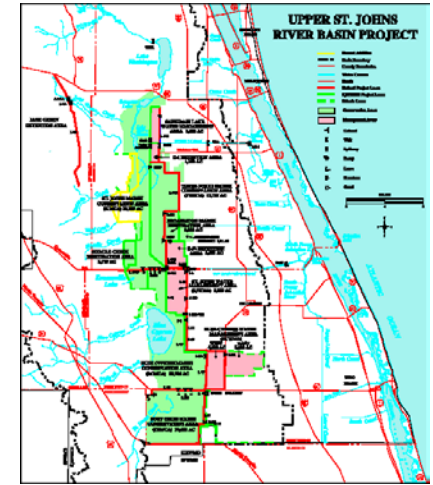
➤ Florida Fish & Wildlife Conservation Commission



Agency contacts

➤ St. Johns River Water Management District

➤ U.S. Fish & Wildlife Service - Region 4



UAV research
(MINWR)



Manatee
Warm Water Task Force
(Jacksonville office)



Manatee Population Ecology
& Management Workshop



Project focus

Adaptive Harvest Management



Goodwin Waterfowl Management Area



Project focus



- implemented in 1995
- federal hunting regulations for ducks
- USFWS, USGS, IAFWA Flyway Councils
- research/mgmt involvement in all phases
- USFWS-R9 and Patuxent WRC

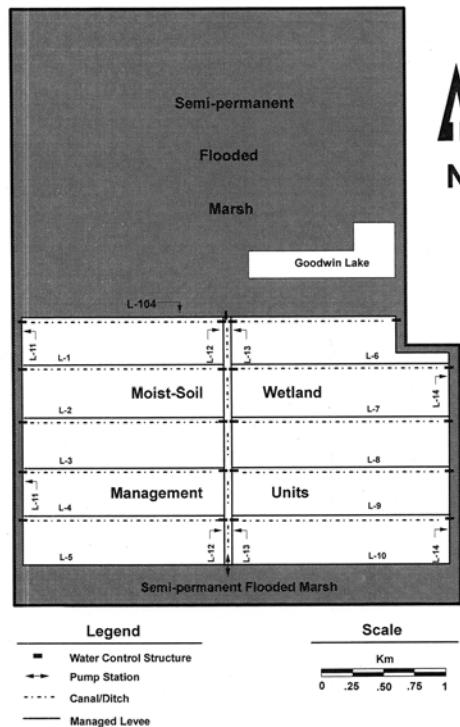
Important institutional features:

- high-level support
- unambiguous jurisdictional authority
- centralized decision making
- objectives limited in scope
- annual decisions, limited alternatives
- tradition of monitoring, assessment, & decision making
- strong technical foundation
- No strong mgmt-research distinction



Project focus

Goodwin WMA



- 1566 ha managed by FWC (& SJRWMD)
- objective: habitat management for wintering waterfowl (other wetland birds)
- uncertainty about effects of water-level manipulations, prescribed burning, and mechanical treatments
- goal: formal, adaptive decision-making process

Figure 1. Map of the T. M. Goodwin Waterfowl Management Area, Brevard County, Florida



Project focus - Goodwin WMA

viability of a decision-theoretic approach

- Bayesian inference & decision theory
- difficulty specifying objectives & trade-offs
- inability to reliably implement prescribed actions
- large number of treatments & frequent decisions - small number of management units



Project focus - Goodwin WMA

*the nature
of uncertainty*



- how to produce desirable vegetation structure & moist-soil annuals?
- effect of disturbance regime on long-term community dynamics?



Project focus - Goodwin WMA

*the need for
operational
monitoring*



- existing records of treatments, but not of vegetation responses
- the advantage of specifying informative prior beliefs
- little-plane troubles



Project focus - Goodwin WMA

*the threat
from para grass*



- several impoundments dominated by this exotic
- environmental conditions ripe for expansion
- the need for rapid learning - traditional research approach



Publications

- Bennetts, R.E., W. M. Kitchens, and V. J. Dreitz. 2002. Influence of an extreme high-water event on survival, reproduction, and distribution of Snail kites in Florida. *Wetlands: In press.*
- Darby, P. C., R. E. Bennetts, S. J. Miller, and H. Franklin Percival. 2002. Do Florida applesnails use movements to escape the effects of drying events? *Wetlands: In press.*
- Dorazio, R. M., and F. A. Johnson. Bayesian inference and decision theory - a coherent framework for decision making in natural resource management. *Ecological Applications: In review.*
- Dorazio, R. M. and Royle, J. A. Mixed models for estimating the size of a closed population when capture rates vary among individuals. *Biometrics: In review.*
- Dreitz, V. J., R. E. Bennetts, B. Toland, W. M. Kitchens, and M. W. Collopy. 2002. Snail Kite nest success and water levels: A reply to Beissinger and Snyder. *Condor: In press.*
- Johnson, F. A. 2001. Adaptive regulation of waterfowl hunting in the United States. Pages 113-131 *in* R. G. Stahl, Jr., R. A. Bachman, A. L. Barton, J. R. Clark, P. L. deFur, S. J. Ellis, C. A. Pittinger, M. W. Slimak, and R. S. Wentsel, eds. Risk management: ecological risk-based decision-making. SETAC Press, Pensacola, FL.
- Johnson, F. A., W. L. Kendall, and J. A. Dubovsky. 2002. Conditions and limitations on learning in the adaptive management of mallard harvests. *Wildl. Soc. Bull. 30: In press.*
- Miller, S.J., R.E. Bennetts, and W.M. Kitchens. A simple technique for a standardized measure of regional patterns of water levels and hydrologic events. *Wetlands: In review.*
- Patricia L. Valentine_Darby, P., P. C. Darby, R. E. Bennetts, W. M., and H. F. Percival. Estimating applesnail densities in Florida wetlands using capture/recapture. *J.Molluscan Studies: In review.*
- Pearlstine, L. G., H. F. Percival, R. R. Carthy, A. Abd-Elraham, S. Morris, and F. A. Johnson. 2001. Development of a practical unmanned aerial vehicle for natural resource sampling. *Proc. 18th Biennial Workshop on Color Photography and Videography in Resource Assessment. American Society for Photogrammetric Engineering and Remote Sensing. Bethesda, MD.*
- Runge, M. C., and F. A. Johnson. 2002. The importance of functional form in optimal control solutions of problems in population dynamics. *Ecology 83: In press.*



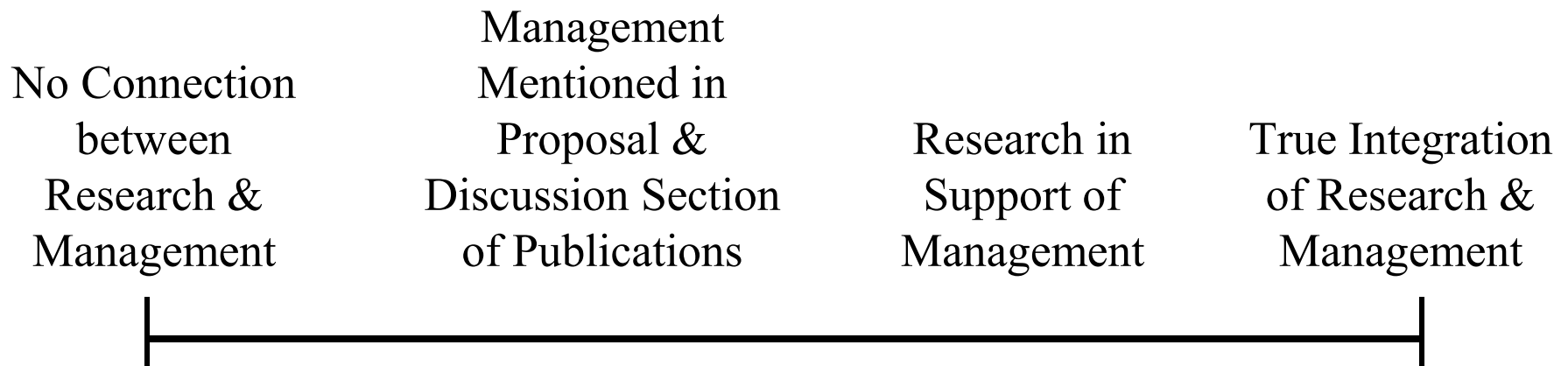


Mission

- To better integrate research and management for the purpose of improving how resource management decisions are made.
- This includes the exploration and development of quantitative tools (e.g., the principles of “adaptive management”, decision theory and Bayesian inference) that might be useful to accomplish this mission.



Integration of Research & Management



True Integration of Research and Management

- Differs from research in support of management
- Management actions themselves provide an opportunity to learn through experimentation (*i.e., they are the experimental treatments*)
 - Practical limitations
 - Must compromise between the value of learning and the value of achieving an immediate management objective
 - Random selection (purely for the sake of learning) is not always feasible or optimal
- More complex
- Potential rewards are greater, but so is cost

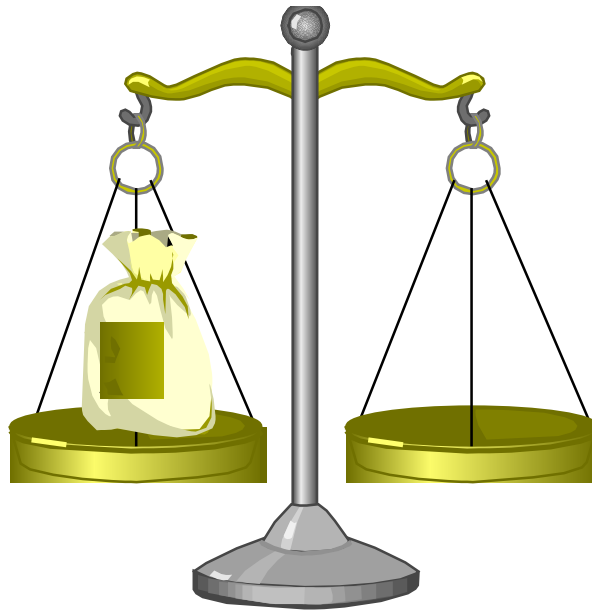


The Marriage of Research and Management

- The Management Context (*e.g., objectives*)
- The Scientific Context (*e.g., hypotheses*)
- Information Needs (key uncertainties)
- Assembly of Existing Information (*e.g., literature review, preliminary analyses*)
- Stakeholders
- Scales
- Resources



Considerable Front-end Investment!



Considerations

Is there

- a clear indication that a lack of information, rather than politics, is limiting the potential to make good management decisions?
- an expectation of explicit and measurable management objectives?
- reasonable authoritative autonomy?
- a reasonable number of treatments?
- reasonable control over treatments?
- management that is repeated over time and/or space?
- opportunity to make advances in the integration of research and management that would have implications beyond the specific project (e.g., process or tools).



Structured Learning

➤ We intend to develop and implement structured learning tools for learning about the “process” of integrating research and management.



Proposal for Next Year

➤ Develop solutions for successful integration of research and management.

- Managing succession in disturbed plant communities to create/sustain wildlife habitat
 - quail, scrub jay, etc.
 - 1 million acres directly managed by Florida FWCC
 - vegetation- based objectives under consideration
- Management of NWR impoundments for spring-migrating shorebirds
 - Southeastern U.S.
 - Modeling state-dependent migration behavior, manipulating impoundments and monitoring responses
 - Potential collaboration among SEAMG, PWRC, N.C. Coop, N.C. State Univ.



Proposed Needs

- Create infrastructure by dedicating personnel from management agencies to work directly with SEAMG
- Location: on-site vs. off-site?
- Duration: fixed vs. intermittent?
- Provides critical mass needed for front-end investment
- Benefits management agencies by building capabilities within the agencies



Risk

Our Proposal is Risky!

- No guarantees, but only asking for 1 additional year of support
- Not requesting additional dollars or permanent staff
- Even if efforts fail, management agencies will have benefited from the first-hand experiences of their personnel

